

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 14 FEB 2005

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Applicant's or agent's file reference W 5874-175 LB		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/EP2004/002904		International filing date (day/month/year) 19.03.2004	Priority date (day/month/year) 26.03.2003	
International Patent Classification (IPC) or national classification and IPC H03B29/00, H03K3/84, G06F7/58, H03F3/45, H03F3/68				
Applicant TELEFONAKTIEBOLAGET L M ERICSSON (PUBL) et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  26.10.2004		Date of completion of this report  10.02.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Agerbaek, T  Telephone No. +49 89 2399-8692		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/002904

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-28 as originally filed

**Claims, Numbers**

1-28 as originally filed

**Drawings, Sheets**

1/8-8/8 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
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International application No.  
PCT/EP2004/002904

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	4, 6, 13-17, 19-23, 26, 27
	No: Claims	1-3, 5, 7-12, 18, 24, 25, 28
Inventive step (IS)	Yes: Claims	14, 16, 17, 19-23
	No: Claims	1-13, 15, 18, 24-28
Industrial applicability (IA)	Yes: Claims	1-28
	No: Claims	none

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**Re Item I**

**Basis of the report**

1. Reference is made to the following documents:

D1: US-A-5 961 577 (SOENEN ERIC ET AL) 5 October 1999 (1999-10-05)  
D2: US-A-6 147 552 (SAUER DON ROY) 14 November 2000 (2000-11-14)

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-3, 7-10, 12, 25 and 28 is not new in the sense of Article 33(2) PCT:

Document D1 (US-A-5 961 577) discloses (Fig. 2) a random binary number generator consisting of a plurality of amplifier cells 30. One such CMOS differential amplifier is shown in Fig. 3 as having the claimed amplifying means 50, 52, load 64, 66, and tail-current source 60, 62. The 'jitter [present in the generator] is the result of the internal thermal noise associated with the integrated circuits that are utilized to realize the amplifiers 30.' (D1, abstract). This corresponds directly to claims 1-3, 7-10, 12, 25 and 28, which therefore lack novelty over D1.

- 2.2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 4-6, 11, 13, 26 and 27 does not involve an inventive step in the sense of Article 33(3) PCT:

The features cited in claims 4-6, 11, 13 and 15 are unremarkable in differential amplifiers and would be added to the amplifier of D1 in an obvious manner as circumstances demanded it. The random generator of D1 is obviously suitable for the mobile communication devices of claims 26 and 27. Claims 4-6, 11, 13, 26 and 27 therefore lack an inventive step over D1.

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 5, 7-9, 11, 18, 24, 25 and 28 is not new in the sense of Article 33(2) PCT:

Document D2 (US-A-6 147 552) discloses (Fig. 6/7) a random voltage generator consisting of a random signal generator 50 driving an oscillator 62 through an interface amplifier 61. The random signal generator 50 (Fig. 5) comprises a plurality of bipolar differential amplifiers G1-4, each having the claimed amplifying means (e.g. Q1, Q2), load (e.g. Q7, Q8, R7, R8), and tail-current source (e.g. I1). The white noise is generated by the amplifier itself (abstract). The G1 amplifier has a DC feedback loop (Fig. 5: 52, R13-15, D1; col. 14, l. 35-39) to control the operating point. The number of amplifiers may be two (col. 10, l. 15-18).

The features of the oscillator of claim 24 correspond to those found in the oscillator 62 of D2, Fig. 6.

This corresponds directly to claims 1, 5, 7-9, 11, 18, 24, 25 and 28, which therefore lack novelty over D2.

- 3.2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 2-4, 6, 10, 12, 13, 15, 26 and 27 does not involve an inventive step in the sense of Article 33(3) PCT:

The features cited in claims 2-4, 6, 10, 12, 13 and 15 are unremarkable in differential amplifiers and would be added to the amplifier of D2 in an obvious manner as circumstances demanded it. The random voltage generator of D2 is obviously suitable for the mobile communication devices of claims 26 and 27. Claims 2-4, 6, 10, 12, 13, 15, 26 and 27 therefore lack an inventive step over D2.

4. Claims 14, 16, 17 and 19-23 are new and non-obvious over the cited prior art.
5. The application meets the requirements of the PCT with respect to industrial applicability, Art. 33(4) PCT, because the subject matter of claims 1-28 can be made or used in industry.